

Amendments to the Drawings:

The attached 13 sheets of drawings replace the original sheets including Fig. 1-12. The new sheets are formal drawings to replace the originally filed informal drawings. There are no substantive changes.

Attachment: 13 Replacement Sheets

REMARKS

This Amendment is in response to the Office Action mailed May 16, 2007.

Reconsideration in light of the amendments and remarks made herein is respectfully requested.

In the specification, paragraph [0047] has been amended to replace "UPR" with --UBR-- as shown in Figure 7.

Drawings

1. The Examiner objects to the drawings as failing to comply with 37 CFR 1.84(p)(4) because the handwritten annotation is not clear.

Applicant has filed replacement sheets herewith and respectfully requests that the Examiner withdraw the objection to the drawings.

Claim Objections

2. The Examiner objects to claim 42 because the claim is dependent on Claim 18, a method rather than a machine-readable media. The Examiner indicated that he would examine the claim as dependant of Claim 41.

Applicant has amended Claim 42 to depend from Claim 41 and respectfully requests that the Examiner withdraw the objection to Claim 42.

Rejection Under 35 U.S.C. § 102

3. The Examiner rejects claims 9-12, 20-21, 32-34, 41-42 under 35 U.S.C. 103(a) as being unpatentable over Oliveira, et al New Preemption Policies for DiffServ-Aware Traffic Engineering to Minimize Rerouting Proceeding of IEEE INFOCOM 2002, N.Y., N.Y. June 23-27, 2002.

4. **Regarding Claims 9 and 41**, the Examiner asserts that Oliveira discloses the invention as claimed in the context of preemption policies for different class types. (696:para 3-5 reading service category as class-type (CT) and example in subsequent paragraph and Figure 9 on page 701).

Applicant respectfully disagrees. Applicant can find nothing in Oliveira that discloses consideration of logical channel exhaustion (LCN). Thus Oliveira does not disclose the claimed element of "if said link is not within an LCN exhaustion state".

Further, Oliveira discloses that, "Lower priority Class-Types (e.g. Best Effort) should not be completely starved by higher priority classes." (696:para 4, lines 8-10). To accomplish this, Oliveira discloses advertising the bandwidth available to each Class-Type such that lower priority Class-Types can reserve some bandwidth that can be preempted by higher priority Class-Types and some bandwidth that cannot be preempted. Thus Oliveira does not disclose the bandwidth available for a new higher priority connection as being the sum of the advertised available bandwidth and the total bandwidth reserved for connections having lower priority than the new connection enhanced by over-subscription as claimed. The preemption method disclosed by Oliveira is distinctly different from the claimed method because Oliveira does not include all the bandwidth reserved by lower priority in the bandwidth regarded as available for a new higher priority connection.

5. **Regarding Claims 10-12, 20-21, 32-34, and 42**, the Examiner asserts that Oliveira's preemption policy discloses whether or not the link is able to sustain a new connection depending on whether a bandwidth request for a new connection exceeds the sum disclosed in Claim 9. (696:para 3-5 read service category as class-type (CT) and example in subsequent paragraph and Figure 9 on page 701).

Applicant respectfully submits that Oliveira fails to disclose the sum as claimed in Claim 9 and therefore Oliveira cannot disclose deciding whether or not the link is able to sustain a new connection depending on whether a bandwidth request for a new connection exceeds the sum recited in Claim 9.

Regarding Claim 12, applicant relies on the patentability of the claims from which this claim depends to traverse the rejection without prejudice to any further basis for patentability of this claim based on the additional elements recited.

Regarding Claim 42, applicant can find nothing in Oliveira that discloses broadcasting System capabilities Information Group (SIG) information or consideration of logical channel exhaustion (LCN). Thus Oliveira does not disclose the claimed element of broadcasting the available bandwidth "within SIG information if said link is not in an LCN exhaustion state".

Applicant respectfully requests that the Examiner withdraw the rejection of claims 9-12, 20-21, 32-34, and 41-42 under 35 U.S.C. § 102(b) as being unpatentable over Oliveira.

Rejection Under 35 U.S.C. § 103

6. The Examiner rejects claims 1-6 and 24-29 under 35 U.S.C. 103(a) as being unpatentable over Shabtay et al (U.S. Patent 689544 1) in view of Rom et al, U.S. Patent Application 2003/0236854), further in view of St-Amand et al (U.S. Patent 6298059).

7. **Regarding Claims 1 and 24**, the Examiner asserts that Shabtay discloses issuing PTSE information (e.g. type length values or TLVs) from a node where the PTSE Information describes a link within an ATM PNNI network, and the PTSE is comprised of a per priority level breakdown of bandwidth reserved on said link (13:35-45 and Figures 6 and 7); and where over-subscription factors in allocating bandwidth (11:50-56 read overbooking) factors can be determined.

8. The Examiner admits that Shabtay is silent with regard to advertising a per service category breakdown of over-subscription factors, or for that matter, advertising a per service category breakdown.

9. The Examiner asserts that St-Amand discloses ATM virtual channel connections where QoS constitutes per service categories. (1:37-50).

Applicant respectfully submits that St-Amand discloses a system and method for interworking between FR (frame relay) and ATM (asynchronous transfer mode) using permanent virtual circuits and switched virtual circuits. (Abstract) St-Amand discloses nothing more than that the circuits used each have a QoS. Applicant submits that the combination of St-Amand with Shabtay still fails to teach advertising a per service category breakdown of over-subscription factors, or for that matter, advertising a per service category breakdown because St-Amand does not disclose advertising with a per service breakdown.

10. The Examiner further asserts that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to modify Shabtay's PTSE teachings and St-Amand QoS teaching to advertise links with TLVs that have per service category breakdown, and include over-subscription factors as a method or using a machine having a readable medium or processing a sequence of instructions.

Applicant respectfully disagrees. Shabtay's PTSE disclosures are directed to a path reroute mechanism in which each node advertises TLVs that include bandwidth allocation information used to derive the actual amount of bandwidth available for protection purposes, protected paths and unprotected paths or a portion of this information such as in the case where unprotected paths are not supported. (Abstract) Quality of Service (QoS) considerations are not

disclosed by Shabtay as they are not relevant to establishing protected and unprotected paths.

Nothing in Shabtay discloses that there is a QoS for the nodes to advertise in the TLVs.

St-Amand discloses a system and method for interworking between FR (frame relay) and ATM (asynchronous transfer mode) using permanent virtual circuits and switched virtual circuits. (Abstract) St-Amand discloses nothing more than that the circuits used each have a QoS.

Applicant can find nothing in these two disclosures that would make it obvious to combine them, that they could be combined, or how they would be combined. With all due respect, the Examiner has failed to provide any reasoned basis for asserting that it would be obvious to combine the disclosures of Shabtay and St-Amand.

11. The Examiner further asserts that such a modification would be motivated in reporting network bandwidth availability with Quality of Service (QoS) (read per service category) specificity, so that the path reroute mechanism can map routes to the finer QoS level, resulting in a more flexible and robust path reroute scheme.

Applicant respectfully disagrees. Nothing in the disclosures of Shabtay and St-Amand supports the premise that the path reroute mechanism disclosed by Shabtay can map routes to the finer QoS level, or that such a mapping, if possible, would result in a more flexible and robust path reroute scheme.

12. **Regarding Claims 2 and 25**, the Examiner asserts that Shabtay discloses that the PTSE information is a Horizontal Link PTSE information type where messages are exchanged in a peer-to-peer manner. (8:52-57)

The cited portion of Shabtay discloses path groups. Applicant respectfully submits that nothing in the disclosure of path groups discloses the claimed Horizontal Link PTSE information type where messages are exchanged in a peer-to-peer manner.

13. **Regarding Claims 3 and 26**, applicant relies on the patentability of the claims from which these claims depend to traverse the rejection without prejudice to any further basis for patentability of these claims based on the additional elements recited.

14. **Regarding Claims 4, 5, 6, 27, 28, and 29**, applicant relies on the patentability of the claims from which these claims depend to traverse the rejection without prejudice to any further basis for patentability of these claims based on the additional elements recited.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 1-6, 24-29 under 35 U.S.C. 103(a) as being unpatentable over Shabtay in view of Rom further in view of St-Amand.

15. The Examiner rejects claims 7-8 and 30-31 under 35 U.S.C. 103(a) as being unpatentable over Shabtay et al (U.S. Patent 6895441), and of St-Amand et al (U.S. Patent 6298059) in further view of Rom et al, U.S. Patent Application 2003/0236854).

16. **Regarding Claims 7-8 and 30-31**, the Examiner admits that neither Shabtay nor St-Amand's teachings disclose the concept of logical channel exhaustion.

17. The Examiner asserts that Rom discloses in the art of dynamic allocation of satellite bandwidth of a priority basis for a requested user. Rom further discloses of a link not within a LCN (logical channel) exhaustion state. (1: [0010] read resource available in resource pool).

Applicant respectfully disagrees. Rom, discussing the disclosure of Garner (U.S. Patent No. 6,058,307), discloses preemption of lower priority resources in the form of frequency ranges. Frequency ranges are not analogous to logical channels. Logical channels provide a "handle" for reserved bandwidths. Preemption of lower priority bandwidth allocations in the presence of LCN exhaustion requires that the preemption yield both the needed logical channels and the needed

bandwidth in an effective manner. Rom's disclosure of preemption of lower priority frequency range resources does not disclose the claimed preemption of lower priority bandwidth allocations when there is LCN exhaustion.

18. The Examiner further asserts that Rom discloses the concept of a per priority level breakdown of whether or not a connection exists on a link; (7:[0088]) an indication of the actual maximum capacity of the link and a maximum capacity value set equal to zero (Figure 5); a per service category breakdown of actual available capacity on a link and an available capacity value set equal to zero for each of service categories. (Figure 5 and 9:[0115])

Applicant respectfully disagrees. Rom discloses in 7:[0088] a comparison of the blocking behavior of a first come first serve system to a round robin sharing system. Nothing in 7:[0088] discloses the claimed "per priority level breakdown of whether or not a connection exists on said link." Figure 5 of Rom discloses designating a priority Zero for the rest of the request which is not a disclosure of the claimed "an advertised maximum capacity value set equal to zero." Nothing in Figure 5 or in 9:[0115] discloses the claimed "an advertised available capacity value set equal to zero for each of said service categories."

19. The Examiner further asserts that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to further modify Shabtay's PTSE teachings and St-Amand QoS teaching with Rom's resource dynamic allocation teachings to construct TLVs that advertise information on a per priority level breakdown whether or not a (available bandwidth) connection is available on a link, further to advertise an indication of the actual maximum capacity of the link and, in the event of link saturation, advertise a maximum capacity value set equal to zero; and , as appropriate, set to zero on a per service category breakdown of actual available capacity.

Applicant can find nothing in these three disclosures that would make it obvious to combine them, that discloses that they could be combined, or how they would be combined. Applicant respectfully submits that the Examiner has failed to provide any reasoned basis for asserting that it would be obvious to combine the disclosures of Shabtay, St-Amand, and Rom.

20. The Examiner further asserts that such a configuration would allow for efficient preemption of lower priority services by disseminating link availability information, thus enabling the network to make informed decisions as to which paths are candidates for preemption.

Applicant respectfully disagrees. Nothing in the disclosures of Shabtay, St-Amand, and Rom supports the premise that these three disclosures can be combined to provide a configuration that would allow for efficient preemption of lower priority services by disseminating link availability information, or enable the network to make better informed decisions as to which paths are candidates for preemption over the individual disclosures.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 7-8 and 30-31 under 35 U.S.C. 103(a) as being unpatentable over Shabtay and St-Amand in further view of Rom.

21. The Examiner rejects claims 13-19, 22-23, 35-40 and 43-46 under 35 U.S.C. 103(a) as being unpatentable over Oliveira, et al New Preemption Policies for DiffServ-Aware Traffic Engineering to Minimize Rerouting Proceeding of IEEE INFOCOM 2002, N.Y., N.Y. June 23-27,2002, in view of Shabtay et al (U.S. Patent 6895441) and further in view of Rom et al, U.S. U.S. Patent Application 2003/0236854).

22. **Regarding Claims 13-15, 22-23, 35-36, and 43-44**, the Examiner asserts that Oliveira's teachings apply in the case when the link is within an LCN exhaustion state and a second new connection requests more bandwidth than is indicated, (696:para 3-5 and Figure 9 on page 701);

Applicant respectfully disagrees. Applicant can find nothing in Oliveira that discloses consideration of logical channel exhaustion (LCN). Thus Oliveira does not disclose the claimed element of "if said link is within an LCN exhaustion state".

Further, Oliveira discloses that, "Lower priority Class-Types (e.g. Best Effort) should not be completely starved by higher priority classes." (696:para 4, lines 8-10). To accomplish this, Oliveira discloses advertising the bandwidth available to each Class-Type such that lower priority Class-Types can reserve some bandwidth that can be preempted by higher priority Class-Types and some bandwidth that cannot be preempted. Thus Oliveira does not disclose the bandwidth available for a new higher priority connection as being the sum of the advertised available bandwidth and the total bandwidth reserved for connections having lower priority than the new connection enhanced by over-subscription as claimed. The preemption method disclosed by Oliveira is distinctly different from the claimed method because Oliveira does not include all the bandwidth reserved by lower priority in the bandwidth regarded as available for a new higher priority connection.

23. The Examiner admits that Oliveira is silent in teaching the use of bandwidth based on SIG information or a mechanism for broadcast and advertising link states or, in the event that a link is exhausted, setting advertised available and maximum bandwidth to zero

24. The Examiner further asserts that Shabtay discloses of using bandwidth based on SIG information and to broadcast link states. (4:14-22)

25. The Examiner further asserts that Rom discloses of setting advertised available and maximum bandwidth to zero. (9:[0115] and Figure 5).

Applicant respectfully disagrees. Figure 5 of Rom discloses designating a priority Zero for the rest of the request which is not a disclosure of the claimed "an advertised maximum capacity value set equal to zero." Nothing in Figure 5 or in 9:[0115] discloses the claimed "an advertised available capacity value set equal to zero."

26. The Examiner further asserts that it would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains to modify Oliveira's preemption teachings with Shabtay's PTSE teachings and Rom's resource dynamic allocation teachings and further construct TLVs to advertise information on a per priority level breakdown of whether or not a connection exists on a link.

Applicant can find nothing in these three disclosures that would make it obvious to combine them, that they could be combined, or how they would be combined. With all due respect, the Examiner has failed to provide any reasoned basis for asserting that it would be obvious to combine the disclosures of Oliveira, Shabtay, and Rom.

27. The Examiner further asserts that such a configuration would further disseminate link availability information, enabling the network to make informed decisions as to which paths are exhausted and which are not.

Applicant respectfully disagrees. Nothing in the disclosures of Oliveira, Shabtay, and Rom supports the premise that these three disclosures can be combined to provide a configuration that would allow for dissemination of link availability information, or that such a configuration would enable the network to make informed decisions as to which paths are exhausted and which are not.

28. **Regarding Claims 16-19, 37-40, 45, and 46**, the Examiner asserts that the sum derived from Oliveira's teaching can be used to decide whether or not a second new connection can be sustained when the second requested connection's sum exceeds the available bandwidth, while lower priority services can be preempted. (696:para 3-5 read service category as class-type (CT) and example in subsequent paragraph and Figure 9 on page 701).

Applicant respectfully submits that Oliveira fails to disclose the sum as claimed and therefore Oliveira cannot disclose deciding whether or not the link is able to sustain a new connection depending on whether a bandwidth request for a new connection exceeds the sum as claimed.

Applicant respectfully requests that the Examiner withdraw the rejection of claims 13-19, 22-23, 35-40 and 43-46 under 35 U.S.C. 103(a) as being unpatentable over Oliveira in view of Shabtay and further in view of Rom.

Conclusion

Applicant reserves all rights with respect to the applicability of the doctrine of equivalents. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,
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Dated: 08/16/2007

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